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The New Zealand Beekeepers' Journal

The Official Organ of the
National Beekeepers' Association of N.Z.

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National Beekeepers' Association of New Zealand.

The object of the Association is the improvement of the Beekeeping Industry and furthering the interests and prosperity of the Beekeepers throughout the Dominion. Membership is extended to any Beekeeper who is in accord with the aims and objects of the Association, on payment of a small fee.

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All communications respecting the Association and Journal to be sent to FRED. C. BAINES, Kati Kati.

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EDITORIAL.

Last month we referred to the vacancy caused by the Apiary Instructor for the Canterbury District leaving the Department, and stated that the position was being advertised for at £170 per annum, which we considered was not sufficient salary for a man qualified to fill the position. We learn that amongst the applicants, the most suitable was a beekeeper with an apiary of one hive, and the experience of one season as a cadet at the Ruakura Apiary! We have not yet heard whether he has been appointed. We think this should bring home to the Department the necessity of offering a salary consistent to the knowledge and experience necessary to fill the position, which should not be less than £250 a year, increasing to £300. This would be equivalent to about a 5-ton crop of honey at £60 per ton f.o.b., which is about the same ratio as when the appointments were first made, as the ruling price then was about 37/- per cwt., less expenses.

We know the present instructors are not at all satisfied with their positions as regards the salary received, and are just biding their time to see if the Department intends to recognise the fact that they are underpaid, and we are afraid that if the matter is not remedied it will be a case of losing experienced men, and then having to offer a larger salary to others, who will not have had the experience, which would be an absurd policy, when the present staff can be retained by recognising their worth and paying accordingly.

* * * *

Our esteemed Taranaki correspondent, Mr. H. R. Penny, has been called up for military service, and passed as medically fit, after having been turned down two or three times. We are very sorry to lose him, and the industry is poorer of a large producer (600 hives), a first-class, painstaking beekeeper, and a good fellow to boot. A man that was running 600 colonies and yet answered the appeal for a district correspondent indicates something. Eh? Good luck to you, Reg.; go and "do

your bit,'' and do not get damaged yourself; come back and take up your work amongst us; the industry can do with men like yourself.

* * * *

The Editor has to appear before the Medical Board on the 31st May. Those who know his remarkably ''fine'' stature will appreciate the figure he would cut in khaki.

* * * *

The Editor will be away from home from about the 4th to the 18th June, being at Barrett's Hotel, Wellington, from about the 10th to the 15th, to where correspondence should be addressed.

* * * *

We would strongly urge all those who intend to be at the Conference to secure accommodation some days before, as the hotels are very full nowadays owing to so many soldiers' wives spending the final leave with their husbands. Having to spend the Sunday night in Wellington when passing through in February, three members of the Executive tried eighteen hotels before finding accommodation.

* * * *

Crop Reports.—The following are the reports received up to the 20th of the month, and we tender our thanks to those who responded to the appeal:—

No.	Spring Count.	Increase to.	Crop. Tons.	cwt.
1	30	47	0	19¾
2	77	117	3	0
3	14	18	1	2
4	40	53	2	9
5	230	250	13	6
6	83	93	3	14
7	113	—	2	19½
8	140	55%	3	15
9	450	—	9	0
10	9	14	0	9½
11	160	—	7	8½
12	54	72	2	1
13	76	—	2	1
14	3	11	0	3¾
15	80	—	3	7
16	300	—	5	5
17	6	12	1	0
18	Per hive 60 lbs.			
19	15	27	0	19
20	80	—	3	10
21	61	—	3	0
22	75	—	3	10
23	12	—	0	13
24	17	—	0	12

Over 700 subscribers, and 24 reports. Well, well!

* * * *

The Conference.—Again we draw our friends' attention to this event, the programme of which we enclose with the Journal. Kindly note it is not necessary to be a member of the National to obtain admittance; everyone at all interested in the industry is welcome to participate in the discussions, come to the luncheon and film show, and to have a good time. We think the following, which is taken from ''The Booster,'' hits the nail squarely:—

''In all this wide, wide world around
No dearer set of folk is found
Than Beekeepers.

''They have their faults—but who has not?
To know them well has been my lot—
(I'm one.)

''They'll sit and talk and spin their yarn
In hall or field, or in a barn
On rainy days.

''Year after year, in field or hall,
The same old themes engross us all;
Of queens—of hives—how large?—how small?
Etcetra.

''But deep beneath these common themes
A bigger, nobler motive springs
To speed the coming meet.

'' 'Tis friendship's call that prompts us come
To apiary, field, or hall, or home,
To greet each other.

''This message comes on Friendship's wings—
' We'll talk of hives and common things,
But think in terms of love.' ''

—G. W. W.

* * * *

Those who know friend Gilling's opinion on the liquor question will appreciate the following. The telegraphic address of the H.P.A. is ''Bees,'' but owing to some men not being very good writers, a number of wires reach our friend addressed ''BEER, Hawera,'' and the Customs people are trying to find an illicit brewery in the district!

* * * *

The National Efficiency Board report:—''Honey Manufacturing—Commercial male operator of not less than 200 colonies, partially essential.''

* * * *

The Honey Market.—Since writing on this matter last month, some peculiar things have happened. The first was that a cable was received from Bristol from the B. and D. to pay out 1/- per lb. without recourse for first grade honey; but before the news was circulated another cable came stating that the market was weaker and the advance was to revert to 9d.

The second item is that the firm of exporters who were offering record prices in Auckland have found it necessary to stop buying, as the matter of shipping the honey is so uncertain.

The third item is that another firm which has been buying honey for export has offered to sell to the H.P.A. a large quantity. Presumably they too find a difficulty in getting it away.

* * * *

This a very interesting situation, as it again leaves the H.P.A. alone in the field in buying for export, at an advance of 9d. per lb. **when shipped.** We would suggest that the H.P.A. make this matter more clear to intending shareholders, as we have received one or two letters in which suppliers complain that they are led by the advertisements to believe they will get 9d. per lb., but when returns come to hand they find the advance is 5½d. per lb. The older shareholders recognise this to be the advance "ex store," but evidently some of the new men do not, and feel they have been misled.

* * * *

In reviewing the selling end of the business, after having a Co-operative Association in existence for five years to take care of it, we must record it a failure to do what it set out to, which was to secure to the beekeepers of the Dominion a uniform and paying price for their honey. Before the Association came into existence honey was being sold at prices that realised to the producers from 3d. to 6d. per lb. nett, and to-day there is a greater disparity, as the following facts will show. In September last one man sold his prospective crop of 5-6 tons at 4¼d.; another was under contract to a grocer for part at 5½d., and the rest was sold to exporters at 9½d.; an Auckland broker picked up a ton in Dunedin at 6d.; another sold his crop to the merchants for local trade, for which he was to receive the equivalent price paid by the Association; another sold his crop of two tons at a fraction under 8d.; others have secured the record price of 1s. 2d.; so we are perfectly right in stating that as far as bringing about a uniform return to the beekeepers of the Dominion, the Co-operative Association has failed.

* * * *

But whose fault is it—the beekeepers themselves, or the Association? The chief fault lies with the beekeepers, who apparently are not satisfied with a fair return, but want inflated values if they are at all possible. What would have happened this year had the H.P.A. not been in existence to have taken charge of 350 tons of honey? Just think of it—350 tons of honey on the local market. Where would you have sold? and what price would you have got? It is no use saying anything about exporting, because the largest exporters in the Dominion cannot get shipping space; therefore you would have been compelled to take what was being offered by the merchants here, which, we venture to assert, would not have been 4d. per lb. for the finest grade, with the secondary grades probably without a market value at all. Would not there have been something said at forthcoming Conference about the unsatisfactory return, and the necessity of co-operation, &c., &c? But to-day, even at the advance of 9d. per lb., the market is still considered unsatisfactory to a number of men, and to their shame be it said, by men who have given their word to put their honey through the Association. Therefore, the position is: the price of 4d. per lb. was unsatisfactory before the existence of the Association, and the advance of 9d., with almost a certainty of further payment, by supplying the Association, with an absolute guarantee of 60/- per cwt. for three years after the war has ended it still unsatisfactory—so WHAT DO WE WANT?

* * * *

Not one beekeeper who sold his last year's crop outside the Association secured as good a price as the shareholders have up to the present, and **there is yet more to come;** and as regards this year's crop, there are not a dozen men who will be able to say at this time next year that they secured a better return than what the Association's payments amount to.

* * * *

It is a very humiliating thing to say, but the proof is positive that the beekeepers are as a body absolutely unreliable, and it is time the H.P.A. recognised this and acted accordingly. The beekeepers gave their word to the directors that they would supply them with the amount of honey their shares represented, and in the case where the crop was a partial failure to supply the whole return from their hives. On this agreement the directors have signed contracts, which contain penalties for non-fulfilment; but no sooner does an apparently better offer come along than the tendency is for the beekeepers to go back on their word, and leave the directors and the contract signed on their behalf stranded high and dry, with the possibility of having to pay probably over £1,000 because they trusted on a man's word who was not legally bound to act up to it. One thing is certain: that the directors of the H.P.A. cannot possibly sign another contract with any firm under present conditions; they must be protected against shareholders breaking faith with them, and if they have no legal redress at present, they must make it so that they have. The B. and D. will not handle our honey without a contract spread over two or three years, and if the directors cannot, by the fact of the agreement with the shareholders not being a legal bond, be sure of securing the requisite amount of honey, the splendid, payable, and much-desired market for N.Z. honey in retail form in the Old Country is gone, probably for ever, because if we break faith with one firm it is no use asking another to take our word. We suggest that if the existing agreement between the shareholders and directors cannot be made a legal bond, then all shareholders should be

asked to sign a letter of indemnity, which we believe would make it so. The Editor, as a loyal shareholder, would be only too willing to do so.

* * * *

We have been accused of giving a lot of free advertising to the H.P.A., and we are not going to apologise for this further contribution, as we believe the H.P.A. and what it stands for means the prosperity of all those engaged in the industry, and it has proved itself to be the finest market the beekeepers have ever had for placing their honey. We are willing and anxious to give the greatest publicity to any other firm, system, person or persons that can show as good a return as our own Co-operative Association.

The colony was one of the best honey-producers in the apiary. It is now divided to make increase.

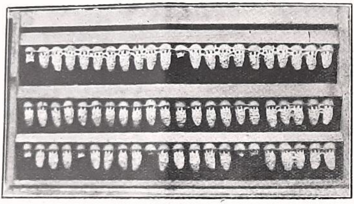
At the time of writing (19th March) I have a frame of 22 cells out of a possible 30 treated in this manner in another colony, although no honey has been gathered for the past three weeks.

The National Patriotic Apple Show.

The above show was held in Auckland from May 1st to 4th, and, as I was given to understand there were competitive classes for both honey and beeswax, as well as a comprehensive exhibit by the Government, I thought it would be good enough to warrant attending, and as I was wanting more gift spoons, I journeyed to Auckland for both purposes.

The display of fruit was very fine indeed, apples of every size and colour, oranges, lemons, bananas, nuts, &c., &c., all raised in different parts of the Dominion.

The Government exhibit of locally produced and foreign honey and beeswax occupied three pyramidical stands, and on each was an observation hive containing bees and queen, which attracted a great deal of attention. There was also a collection of hives and appliances from the Ruakura Apiary, but owing to the lack of space these were not displayed to the best advantage. In fact, I think the whole exhibit was spoilt by being scattered amongst three stands, as a large single stand, with the honey and wax on tiers and the appliances in the front, would have been more imposing and attractive. I think the beeswax exhibit could be considerably improved by having good solid cubes of wax about 12 inches square in four stages—ordinary commercial wax, refined, double refined for foundation-making, and bleached, instead of having a great number



Raising Queen Cells.

(By R. WHITING.)

Enclosed you will find photo. of queen-cells raised in my apiary during the first week of February.

No doubt some of your readers would like to read of the methods used.

The wax cells are made in the usual manner, and stuck into round wooden blocks fastened on to bars of frame. Royal jelly is then placed in each cell (the quantity I find that gives the best results is about the size of a grain of wheat); then place on the royal jelly the smallest larvæ that it is possible to handle without injuring it—say, from one to two days old.

The frame of prepared cells is then placed in the top storey of a strong colony between two frames of young brood. Some of the remaining frames should contain some honey. A queen excluder is placed beneath this storey to keep the old queen down.

This plan never fails with me. The same colony raised five batches of cells in succession. Then, as they became a bit vicious, I gave them a rest for a fortnight and started again. The result is before you in the photo., and the following batch on the same frame numbered 55.

of little bits all sizes and shapes stuck here and there amongst the honey. One lady pointing to a piece that had been shaped in a jelly mould, asked me if it was good to eat! I told her it was good for the complexion, provided you ate enough of it!

There was an interesting poster displayed by the Department, indicating the export of honey, the amounts being placed under a drawing of a 60-lb. tin in relative size, and the totals put in cwts. The figures are:—1912, 1,034; 1913, 586; 1914, 1,885; 1915, 2,456; 1916, 2,390; and 1917, 1,872cwt., with an explanation that the decrease in the last two years was due to the lack of shipping.

In the catalogue there were three classes for honey, two for beeswax, and one commercial exhibit. Whether it was due to lack of advertising these classes or apathy on the part of the beekeepers I do not know, but the fact stands that there was not an entry in any of these classes, except a commercial exhibit by the H.P.A. Whatever the cause, it is rather sad that visitors should get the catalogue, see the classes for honey and wax without an entry. They would, of course, get the impression that these products are of no value, and not worth the beekeepers' trouble to display. What a pity it is!

There were four frames of honey with the words "God Save the King" drawn out. These were loaned by Mr. Hardcastle, of Rotorua. On the evening of the first day a paper, "Bees in Relation to Fruit Culture," was given by Mr. I. Hopkins, which was listened to by a large number of fruitgrowers, who expressed a very hearty vote of thanks to Mr. Hopkins for the very interesting paper on a subject of such importance to the orchardist. This paper will appear in the Journal.

Such, then, is the report of the honey exhibit at the National Apple Show, and the thought occurred to me whilst there, "Where does the National Beekeepers' Association come in?" It does not come in at all: it is away in the back-blocks, or up in the air, or somewhere else, certainly not where it should be—right in the very front at any and every show in the Dominion. For just think what a show we could get together if every branch got a comprehensive display of honey and wax from their particular districts, and all these were sent to make up the National Beekeepers' Association stand! Here is an opportunity for friendly rivalry amongst Branches to boost their own Province, and I venture to assert that if this matter is taken up as it should be, we should be able to "knock spots" off the Government of any other exhibit. Although the National Beekeepers' Association had no stand, I was able to talk bees to some of the people who were attracted by the observation hives at the Government stands, and they learned there was such an organisation as the National Beekeepers' Association, and that it ran a Journal, which resulted in three new subscribers. Now, is not it a reasonable possibility that if the National had a show of honey, which would be in charge of, say, the President or Secretary, of the Branch of the district nearest to where the show was held, that both the Association, the Branch, the Journal, and the bringing before the people the value of honey would all be accomplished in one hit.

I think this is a matter that could be profitably discussed at Conference.

F. C. B.

Hints on Hive Making.

By E. G. WARD.

As the bees are now to be left to their own devices for about four months, I have chosen the above subject for my contribution this month. I think I may claim to speak with authority, as I make all my own, as well as supplying any who care to give me an order in the "off" season.

I do not advise anyone to make his own hives unless he has access to machinery, but of course it can be done at the expense of a great deal of time. One thing I would impress on the embryo hive maker is to make everything interchangeable. Nothing is so conducive to ill-temper than odd sizes. Another point is to make everything of the standard size, and as the Langstroth hive is almost universally the favourite, then that is the size to adopt. Do not adopt the old style of rabbeted hive, it is out of date, and gives endless trouble through breaking of rabbets. The dovetail hive is just IT, but out of the question if you work by hand.

I advise a flat roof covered with galvanized iron, or one of the various kinds of black roofing. I made the first of my roofs of the gable pattern, but disadvantages greatly outweigh the advantages. I do not think there is anything to be gained by making the floor-board reversible. Instead of doing so I use an entrance block, which answers three purposes. The floor has a rim ¾-in. high on sides and back, and this gives a ¾-in. entrance full width of the hive without the block. The loose entrance block is made to fit the floor-board opening easily, and is cut out on each edge to make an entrance ¼-in. high. One side 7-in. long and the opposite 5-in. long. If smaller is required, a piece of lath the required length is slipped in. If it is necessary to close the hive completely, the block is laid on its side and pushed into the ¾ floor-board entrance.

I make my alighting boards detachable. I put an iron screw eye at each side of the entrance, and make the alighting board the right length for slipping in be-

tween. The screw eyes are placed ¼-inch further apart than the length of the alighting board, and a nail is driven into each end of the alighting board, and the head cut off with a file. One nail is left about ¾-inch long and the other ¼-inch. To attach the alighting board, the ¾-inch length is put into the eye on one side, with the end of the alighting board hard against the eye. This will allow the ¼-inch nail to pass the other screw eye, and by moving the alighting board ¼-inch in the opposite direction, the alighting board is held firmly in position against the front edge of the floor board. It will be understood that the edge of the alighting board is bevelled to allow a slope to the front. A stick or stone will be found an advantage if put under the front edge in preventing breakage if a weight should be accidentally put on the alighting board.

I advise a one-inch air space above the frames and vent holes one inch in diameter at each end. Also, let the sides come down the hive body about three inches, and there will not be any danger of the wind blowing lids off.

The standard size of a Langstroth hive is 20 inches long, 16 inches wide, and 9½ inches deep for full supers. Half supers are 5½ inches deep, outside measure in all cases. The wood must be ⅞-inch thick; if thicker it will not allow sufficient bee space at the ends of frames, and you will have trouble with propolis.

The ends of the supers must be rabbeted down ⅞-inch from the top edge, and a tin rabbet made to stand ¼-inch up, nailed inside. When the hive body is nailed up the distance between the rabbets should be 19 13-16 inches. This will allow the zinc queen excluder to lay down on the tops of the frames, and will allow a little play for a 19-inch long top rail of frame.

I make my floor boards 21 inches long and the sides 2¾ inches wide, with a groove the right size to suit the thickness of wood for the floor proper, and instead of nailing 4 x 2 blocks underneath, I make a separate hive stand out of any rough timber, and stand the floor board on it. Four half bricks answer just as well.

The hive body (or super) may be made just the same as an ordinary box, but will be rather a ramshackle affair. It will be found much better to rabbet the ends out ⅞ x ½, and nail the sides in. If this plan is adopted, it can also be nailed through the end into the end grain of the sides, and will make a good strong job if a good coating of thick paint is first put into the rabbet.

I strongly advise anyone who is going to make his own hives to get a small joiner's cramp. It will soon pay for its cost in enabling you to hold your hive body together when nailing up.

The regular factory-made frame will fit this hive body, and you will not go wrong if you make up a number, even if you decide to go in for the factory-made dovetail hive at some future time.

I will give some hints on frame-making next month if our worthy Editor approves.

District Reports.

WOODVILLE.

The crop in this district was smaller than one would have expected, as the weather was fair, though not so warm as usual, and lots of rain.

Although clover was very abundant, the bees did not work on it much till late in the season.

Hawk-weed is very plentiful here, but the bees are seldom seen on it.

Strong colonies that were well fed from August till the middle of November averaged about 40 lbs., but nuclei and swarms barely gathered enough to winter on. Those who did not feed in the spring had a small job extracting, and a small cheque from the H.P.A.

N. J. BOWMAN.

May 10, 1918.

Notes from a Breeding Specialist in England.

(By M. ATKINSON, Bee Farm, Fakenham, Norfolk, England.)

(Concluded.)

STATE APIARIES.

I hope it may not be superfluous to refer to the matter of State activities for the benefit of the agricultural industry, as far as such work is devoted to the bee itself, and as I see it from the point of view of a breeding specialist who has already covered some of the ground. New Zealand already has a State Experimental Apiary recently reorganised. I am not very well acquainted with the lines upon which experiment and investigation is being carried on there, but unless a very thorough investigation into the possible improvement of bees holds a leading place in its programme, I should consider the larger half of its utility will not be obtained. Not alone is the Italian bee concerned in this. It is a matter of far greater scope indeed, and while this, and probably such a matter as the honey resources of the Dominion and their conservation and improvement were being thrashed out, a Government apiarist would

be but seldom heard, and less seen. Ten years' work along such lines would yield some striking results, as compared with fumbling about on elementary matters every beekeeper should become familiar with from text-books and their confirmation by a little practical work. No State organisation ought to be requisitioned for that.

Improvement in bees is clearly a matter for State activity, and at least the honey bee is a State asset of great value.

No individual breeder can be expected to go into this question beyond the point of pure race breeding. To do so is an expensive proposition, but along the lines of investigation of different races, selection, cross-breeding, and final composite breeding, some very valuable results are probably to be gained, and yet we would have "pure" stock, but of a class which would have acquired the benefits which follow from judicious cross-breeding.

Where would Luther Burbank have arrived in plant life if he had steadfastly adhered to the original purity of his subjects?

There are points in the make-up of the pure Italian bees which are exceedingly wasteful in the final results of a colony's labours, and which, I maintain, can be radically changed for the better. And this in a matter of but a few years, compared to a long series of years of careful selection on ordinary lines. The latter could probably never equal the former.

A year ago, in a private communication to Mr. Baines, I expressed my conviction, based upon observation of the work of my composite bees up to that time, that a well-selected composite bee can be produced which, from the starting point in spring, will at clover time be ready with a 4 to 5-fold increase by division to produce each a full colony share in the total harvest for the season. On a wintered total of 50 stands of bees, assuming only an average of 100 lbs. surplus per hive for the increased apiary, one reaches the figures of 400/500 lbs. average, spring count, and surplus stocks are available for sale at a low figure or doubling to reduce, as desired, in autumn.

To my correspondent such figures might have seemed a dream.

Since then a striking instance of this type of revolutionary beekeeping comes to hand in the pages of the "Beekeepers' Gazette" for November, 1917, dealing with, presumably, two full years' work, 1916 and 1917, of "Punic" bees in England. In an article in that Journal, Mr. G. W. Bullamore, F.R.M.S., writing on "Alien" bees and the wintering problem in England, has the following to say:—

"Now as to the Bartlett results. The Punic, a bee of Tunisian descent on the maternal side, has saved the situation for Mr. Bartlett, who is a honey producer.

"After heavy winter losses, from a spring count of 40 stocks he harvested two and a-half tons of honey, being an average of 140 lbs., and increased ten-fold. And he undoubtedly earned that honey, and is about the only man in England with the energy to do it. This result is again followed by a loss of 90 per cent. or so, with the tenfold increase also repeating itself. The increase and honey yield could not be obtained from a less energetic bee, and as Mr. Bartlett must produce honey, the 'Punic' has proved a boon to him.

"But my side of the case is that if we put 400 stocks into winter quarters, and the bees winter with a loss of 25 per cent. instead of 90 per cent., an average of 20 lbs. per hive instead of 140 lbs., will give us 2½ tons of honey, while we have only to increase one in three to fill up our hives again."

In regard to the wintering problem in the foregoing case, I agree with Mr. Bullamore's further deductions that the Punic and other bees from very warm or tropical climates are not the wintering proposition we would desire. By composite breeding, however, the best qualities of this Punic and a fine northern race are possible of preservation, and defects eliminated or greatly reduced.

But the point with which I am chiefly concerned here is that Mr. Bartlett found it possible to make a tenfold increase with reasonable chance of profitable surplus. He has the reputation of being an experienced honey producer, and not at all likely to throw away his opportunities.

But looking at it after the event, if the increase had been kept to only fivefold he might have increased his surplus average to a fair amount over double his 20 lbs., reducing the manipulatory labour by half, and having more time available for the building up of a much less total.

The Punic, however, as well as the Italian, in the pure state, are not the kind of bee entirely suitable for this type of beekeeping. Prolificacy favours it in the work of division, but obliterates the advantage after the division to the point of almost eating its head off. It is a contributory cause to a low surplus average.

Purely southern races of bees are not of the economical stamp of bees native to northerly climates. If the latter also possess the quality of longevity in a marked degree, it is a factor in natural limitation of superfluous breeding, saving waste of the ingathering, and a welcome absence of a host of mere consumers after the main flow is over or when bad weather intervenes. They will winter perfectly on a minimum of bees and stores, which would ruin their softer southern sisters.

Mr. Bartlett's case is one more example of the fight which has had to be put up in the Old Country against "Isle of

Wight.'' His choice of race has given him a back-breaking proposition.

But it is also a most valuable illustration of the great variety in bee life, and the possibilities open to us if we could have this matter of inter-breeding for composites put into practical shape by its adoption and fostering as a State enterprise. In comparison with it, Experimental Apiaries, in their duplication of everyday practice, are but shying at the substance while clinging to the shadow.

In the same season in which Mr. Bartlett produced his 20 lbs. Punic average, individual stocks, carved out as small lots from full colonies of my composite bees, produced here 100 lbs. and 120 lbs. of surplus honey, while one produced 170 lbs., and the season in England was a peculiar one.

I see no virtue in unlimited prolificacy in bees, as is looked for and demanded in Italians. The gospel of hives boiling over, to my mind, defeats itself—that for every 1 lb. of honey finally harvested 2 lbs. are wasted by it. As a wintering bee, the Italian is the most expensive race in general use. This is an immense loss to the industry, which a better bee would save.

To say the Italian bees are the best for this, that, or most situations is but a lazy way of shelving a problem I consider contains possibilities of the greatest moment to the future of apiculture; the next great advance, equivalent to the difference between the skep and box-hive and the frame hive method. To make that advance possible is not the job of the small man—it is the bounden duty of the State.

A revolutionary programme if you will! Revolutions are but the vigorous moments in evolution, and evolution would be a slow coach without them. The life of to-day can see on every hand old-time methods and practice ruthlessly turned inside out, with results that we do but wonder why they have been permitted to prevail so long. Difficulties occur by the way, only to be surmounted; to compel us to prove every new advance as it is made. By force of circumstances substantial gains are secured only after exhaustive investigation, experiment, and test.

Beekeeping for Beginners.

MONTHLY INSTRUCTIONS.—JUNE.

[As these Instructions conform to the seasons in the Auckland Districts, an allowance must be made for difference in latitude North and South. Average bee-seasons in the extreme North are four weeks earlier, and in Southland three weeks later.—Ed.]

I have taken the following from the Bee Bulletin issued by the Government, and if instead of kerosene case you read benzine case, you will have a hive that will last a number of years. There are men in a big way who have for years used nothing else than benzine cases with complete satisfaction.

By the way, have you a copy of the Bee Bulletin? If not, send to the Agricultural Department at once for one, as there is very valuable reading in it, with illustrations of foul-brood disease, how to handle combs, appliances, &c., &c., and a host of useful information.

A Cheap Langstroth Frame Hive.

Though there may not be much gained in the long run by making any other than good substantial hives in the first place, especially by those who can construct their own, there may be settlers to whom the question of saving a shilling or two upon each hive is a consideration. In such cases the following directions for converting a kerosene case into a Langstroth frame hive of the same dimensions as the standard Langstroth, and which complies with the Apiaries Act, should be of service:—

Secure a complete and sound kerosene case, and carefully knock off one of the broad sides; nail on the original cover, which will now form one of the sides. If the sides of the case are not level all round, build them up level with fillets of wood. The inside depth should be 10 in. Next nail on at each end, half an inch below the inside upper edges of the case, to suspend the frames from, a fillet of wood ⅝ in. thick by ¾ in. wide, and the length of the inside end of the case. The frames when suspended from these should be a clear ⅜ in. off the bottom of the hive. An entrance ⅜ in. wide should be cut out the full width of the lower part of one end of the case, and an alighting-board nailed on underneath, projecting from 2 in. to 3 in. in front. A loose bottom board can be arranged in place of the fixed one, and is a decided advantage. Top or surplus honey-boxes can be made in the same way, but will not require a bottom. Beginners should purchase "Hoffman self-spacing frames" from the manufacturers, as they need to be very accurately made, and are difficult to make by hand. If it is desired, however, to construct frames, the following are the dimensions:—

Cut the top bar 15-16 in. wide by ¾ in. deep, and 18¾ in. long. Shoulders should be cut out on ends ⅞ in. long, leaving a thickness of ¼ in. to rest on the fillets. The ends should be 8½ in. long, the same width as the top bar, and ⅝ in. thick; bottom bar 17½ in. long, ¾ in. wide, and ¼ in. thick. There are ten frames to each hive.

The cover can be made from the side knocked off, and should have small fillets 1 in. wide nailed on right round the edge, to overlap the body. Cover the top with

ruberoid or other waterproof material, and let it overlap the edges. A capital waterproof covering can be made by first giving the wood a good coat of thick paint, and, while wet, laying on open cheese-cloth (not butter-cloth), letting it overlap the edges, and painting over it. The paint on the wood will ooze through the cloth, and the covering will last for years—no tacks are needed. Light-coloured paint is best, as with this the hive will keep cooler when exposed to the sun than if painted a dark colour.

The actual outlay for such a hive, allowing 4d. for the box, would be under 1/-, providing the person made his own frames. With the additional comb-foundation, which is necessary to complete the hive, the total outlay would be about 4/-. There are a large number of these hives in use at the present time, but they are not very durable. When setting the hives out, keep them raised 5 in. or 6 in. off the ground on bricks at each corner, so that there may be good ventilation underneath.

F. C. B.

Comments on Passing Bee Events.

By CRITIC.

[These Comments, be it understood, are not to be accepted in the light that "Critic" thinks he knows everything about bees, because he knows he does not, and never can. They are simply intended to help in some small way the development of our industry.]

May Number—**Editorials.**—I note that, apart from the adjourned annual meeting of the H.P.A., which, seeing the important part it is playing in the progress of our industry, deserves ample time for its deliberations, only two days are to be devoted to the actual business of the Conference, a part of which is to be taken up by a luncheon and a picture display. These latter are eminently desirable as sociable functions, and should certainly form part of the Annual Meetings. The only matter to be considered is, Can the business of the National as it concerns the vital interests of the industry be fully considered and satisfactorily settled in the part of the two days allotted to it? The reply to this query, in my opinion, depends almost entirely upon the ruling of the President. If he rules that each speaker to a motion shall only address the meeting once on a time limit of, say, eight minutes or less, and that only the mover shall speak twice, then probably the two days will be ample to get through all the business. If, however, as has been usually the case at former Conferences, members are allowed to speak on the same motion as often and as long as they like, then two days are barely sufficient. Nothing is more tiresome or more calculated to block business than members being allowed time after time to jump on to their feet and speak on the same subject. It is to be hoped that this will be regulated at the coming Conference.

You, Mr. Editor, say:—"We feel that it is necessary the members of all the Branches should meet once a year," &c., as though the National and its Branches are not one and the same. Of course, it is the duty of the Branches to be represented at the Annual Conference, and at the ensuing meeting the better conduct of the Branches needs to be fully discussed, whereby a scheme of working shall be devised to attract more members.

As you remark, £170 per annum is a ridiculous sum to offer to a person capable of undertaking the duties of an inspector of apiaries, an instructor in beekeeping, and a grader of honey. Why, a beekeeper worth his salt can readily make from £400 to £500 a year clear at his bees and be his own master. If he cannot make that then he would not be worth much as an inspector.

Page 69—**Remedy for Bee Stings.**—Bee-sting remedies of various kinds seem to be hardy perrenials, for they are unceasingly springing up again after a season of rest. I think I have tried every remedy advocated as an experiment, merely to test them, but never found anything worth a jot to allay pain; hot water as a counter-irritant is probably as good as anything if applied quickly; it will tend to diminish swelling. The poison enters the circulation at once, which is the cause of pain, and every pulse drives it further away from the wound, so that anything placed on the latter is useless, unless it deadens the nerves around the wound. Pure carbolic acid applied quickly from the end of a glass rod is said to allay pain. In the case of very bad effects from stings, where there is threatened collapse, a good dose of a stimulant to keep the heart going should be given. Brandy or whisky, two doses in from 15 to 30 minutes, usually brings the patient round. I have administered this remedy with good effects on two or three occasions.

Page 72—**Newspaper Divisions.**—I think anyone who adopted the "division board" made of paper wrapped comb could spend a good deal of time clearing scraps of paper from the entrance. Bees are dabsters at gnawing paper within their hives; they seem to enjoy it; their time could be better employed.

Page 73—"**Canterbury Tales.**"—Mr. McKnight's experience bears out my comment on introducing queens last month, and reminds me of the trite remark of Mrs. Harrison, a one-time prominent American lady beekeeper, that "bees do nothing invariably."

My friend Mr. Ward does not agree with my comment on the Canterbury Beekeepers' Association over the loss of fifty amateurs as members. Now, any unprejudiced person (I do not mean to infer

that Mr. Ward is prejudiced, far from it, for I am sure he deplores the split as much as anyone) reading Mr. Percy Gill's letter, which appeared to be an honest and straightforward statement, cannot come to any other conclusion than that there was a want of activity on the part of the Canterbury Beekeepers' Association in allowing a rival Association to be set up in the same district without making a strenuous effort to persuade the amateurs to join the former. The fact of such a big response to Mr. Bowman's advertisement speaks for itself, and shows how many were ready to be instructed in beekeeping, and how many the C.B.K.A. were missing through the want of more push. Let us hope, however, that some steps may be taken by the National to bring both bodies together.

Pages 73-74—**Wairarapa B.K.A.**—This Association is still keeping up its reputation as a live organisation. The meeting reported in above pages was the third since its initiation in October last, and the business-like proceedings of the meeting does the Association credit, and sets an example to others.

Page 74—**Colour in Grading.**—I still think Mr. Hooper Teed is on the wrong track. Colour of honey must be considered in our grade notes—in fact, as I have previously intimated, I believe it to be of more importance than the allotted points (10) indicate. If Mr. Teed refers to almost any number of the British Bee Journal, he will see that "colour" is specially mentioned in the advertising columns. The first Journal I picked up (Dec. 20/17), the following appears:—"Wanted, quantity light extracted honey," &c. And again, "Light English honey," &c. This latter was for sale. The word "colour" is omitted to save expense. A very dark honey may be "bright" in appearance, but that will not count on the English or any other market with a light amber for either demand or price. Seeing also that after full consideration by the National Executive, graders, and directors of the H.P.A., in combined conference, they agreed that the present scale upon which the grading points are allotted is satisfactory, we should all be content to accept that decision.

Pages 74-5—**Capping Melters.**—Sometimes called capping smelters and wax smelters, I think "capping converters" would be more appropriate. But there, what's in a name? There can be no doubt that steam generated separately from the extracting room, and led through insulated pipes to the machines, would be infinitely better than the lamp and water business. Even the best of lamps throw off fumes that are at times almost unbearable, and must be detrimental to health, to say nothing of the heat from them. If the heat is generated outside of the room itself and the exhaust steam led through the floor, one could work in a dry heat and a pure atmosphere in comparative comfort. Ugh! Let us get rid of the lamp!

Page 76—**Market Reports of Honey, Wax, and Bees.**—Any attempt to give more information than is supplied by the Department regarding the markets would only mislead. Even these latter cannot be explicitly relied upon just now when prices are so unsteady. Between the times when the reports are sent in and their publication in the Journal, the prices may be altogether different.

Ibid—**Bee Farm Boundaries.**—This question in other forms, such as overstocking, &c., formerly occupied much space in the American Bee Journals, and to my knowledge was discussed off and on for fully twenty years, without anything of a definite nature being arrived at. I am aware that in Victoria on Crown lands bee farm licenses are issued for an area of one mile radius, at a cost of about £4 15s. per annum; but from what I have gathered comparatively few beekeepers have taken advantage of the provision. Such a regulation in New Zealand, confined to Crown lands, would be of little service. If I am not mistaken there is some regulation of the kind whereby apiary sites are reserved on blocks of land set apart for settlement by our Lands Department. Unless such a regulation embraced the whole country it would be of little use, and it would be impossible to bring in legislation to control private lands in this respect. If a satisfactory solution of this question had been possible, depend upon it our American cousins would have solved it long ago.

Page 78—**Artificial Comb.**—Notwithstanding the flourish of trumpets over the aluminium comb business, I have not very much faith in its success at present. There has been so many failures with artificial bases other than pure beeswax for combs, that it will be a great triumph should the aluminium base turn out a success.

Ibid—**Russian Beeswax.**—This paragraph states that Russia imported (annually, I suppose) beeswax of the value of 3,000,000 dollars, almost all from Germany. True, most of the material of which the Church candles in Russia were made of was obtained from Germany, but first of all the beeswax in them was imported into Germany from Russia herself. If space permitted I could give the whole particulars, but it will suffice to say that German agents bought up nearly the whole of the beeswax produced in Russia, and notwithstanding the Church candles must, according to religious rites in Russia, be of pure beeswax, the Germans having secured all the latter, made the candles of a composition consisting of only two-thirds pure wax, for which they charged a big price, and sold them to the Russian Churches.

Are you a Socialist? Come to the Conference and learn wisdom.

Honey Crop Prospects.

The Director of the Horticulture Division has received from the apiary instructors the following report concerning the honey crop prospects:—

Auckland.—There is nothing further to report since last month. Prices remain unchanged. There is a keen demand for beeswax, for which 2/- per lb. can be obtained.—G. V. Westbrooke.

Wellington.—The honey crop prospects for the past year have been realised as anticipated, and again average crops of good quality honey were secured. Last month's prices are still maintained, and are likely to hold good for the whole of the past crop. Clean beeswax is realising 2/- per lb.—F. A. Jacobsen.

Dunedin.—There is little fresh to report. Extracting has finished, and the bulk of the honey has been marketed. Prices are firm. Pat honey: none forward. Bulk honey: 9d. to 10d. per lb. Sections are scarce, and are quoted at 7/6 to 8/6 per dozen. Beeswax is in strong demand. Prices are ruling from 1/6 to 1/9 per lb.—E. A. Earp.

Correspondence.

(TO THE EDITOR.)

Sir,—As Mr. James Allen seems to have some difficulty with his melter, the following may be useful. I have during the whole of this season and half of last used the original melter designed and made by Mr. H. Benton. Using this melter, it is not necessary to also melt the man that is doing the uncapping. As the heat (steam) is generated outside of the honey house, said honey house does not become too hot. As in all probability Mr. Benton will bring one down to the Annual Conference, the members can see for themselves.

Re honey boxes for shipping honey in bulk without tins, I may state that I cannot alter my opinion, which I expressed at last Conference, for the following reasons:—Let us say the s.s. "Wyndham" leaves the Glasgow Wharf, Wellington, and amongst her cargo in cool storage is 50 tons of honey in white pine boxes. The ship makes the composite great circle track down the South Pacific until she is in the latitude of Cape Horn, Lat. 55° 59' south. On the run from Wellington the temperature on deck is steadily going down, and, moreover, the air is very heavily saturated with moisture. The mere fact of the honey being stored below does not alter "in one iota" the atmosphere surrounding the cargo. After rounding the Horn and steaming up the coast of Brazil, of course the temperature on deck is steadily rising, but cool store is kept down, I believe, to 40° Fahr. or thereabouts. Atmosphere dry, as a rule. After crossing the Equator and getting towards the latitude and longitude of some point in the English Channel, depends where the ship is bound to, we again find the atmospheric conditions anything but lovely for our honey. The high temperature of the Gulf Stream, running in a N.E. direction directly into a low atmospheric temperature, causes intense evaporation of the sea surface, hence the heavy rainfall on the West Coast of Ireland, and in a lesser degree the West of England. The trouble does not even end here or when discharged from the ship. After storage at Bristol, it is just as liable to absorb moisture, more especially in spring and autumn. The extra freight for cool storage would, I believe, be more than the price of tins. With tins we are safe, and, moreover, there is always more cargo space in the open hold than cool store, which is a large item in these days of shipping shortage. The chief refrigerating engineer of some of the ocean-going ships would throw some light on the subject, Mr. Allen.

I may here state that I have rounded Cape Horn eleven times, was eight and a-half years as a ship's officer, and two and a-half years as chief officer of foreign-going ships, so perhaps I have covered the ground or ocean enough to give my opinion on this subject.—I am, &c.,

ROBT. H. NELSON.

Haungaroa Rd., Martinborough, 11/5/18.

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(TO THE EDITOR.)

Sir,—Referring to your comments in the May number of the Journal on my letter relating to colour in grade notes, I may say I wrote to one of the graders in consequence, asking if my version was correct. In his reply he states:—"Yes, I noticed the Editor's comments, and was rather surprised, as brightness is what we do want. A bright coloured honey would certainly receive more points than a dull coloured one." I think, therefore, further comment on my part is unnecessary.—I am, &c.,

W. HOOPER TEED.

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CHIEF APIARIST.

(TO THE EDITOR.)

Sir,—The tacit denial by Mr. Bray in your April issue of all knowledge of the suggestion in the "N.Z. Farmer" re appointment of a Chief Apiarist, and his claim to have brought the matter forward in the Journal without such knowledge, calls for a reply from me.

As Mr. Bray's memory appears to have failed him, I will endeavour to refresh it by informing him that he did know what

appeared in last May issue of the "Farmer" regarding an article by myself on suggestions for the then forthcoming Conference, and how he came to know. At the close of last April I posted to Mr. Rentoul, the then President of the National, a proof-slip of the article that appeared on the 1st May. On the 7th of May I received his acknowledgment, in which he stated: "I generally agree with you on all issues"; and further: "I am sending your cutting [slip] on to the Secretary [Editor of Journal], and will try to have the subject dealt with at the Conference." Immediately following this Mr. Bray published the suggestion in an editorial in his May number (issued middle of the month) as his own.

Mr. Bray says he is not a thought reader: perhaps not in the ordinary sense, but apparently he is able to read them when committed to print. Further comment is unnecessary.—I am, &c.,

I. HOPKINS.

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(TO THE EDITOR.)

Sir,—We published in the January issue of the Journal the following news item by way of advertisement:—

"Further cable from our Agents, the Bristol and Dominions Producers' Association, cabled to their Wellington Office:

"Pay ninepence per lb. for first grade honey when shipped."

We find there are a few who have construed that as a statement that we are advancing to our shareholders 9d. per lb. when graded. How they can possibly extract that meaning from the advt. passes our comprehension. The cable means nothing more than it says, viz.:—The B. and D. are to pay us 9d. per lb. advance **when we ship the honey**; but we have to get it on board before we can draw the 9d. per lb. In the meantime we have to arrange our advances on what we can obtain on store warrants, and as this is only 5d. on first grade honey and 40/4 per cwt. on dark amber and C grade honey, we think we are doing very well to advance 5½d. on L.A., A and B grade; 4¾d. M.A., A and B grade; and 4¼d. D.A., and C grade.

The Government have bought all the cheese produced in New Zealand at a price that will enable the factories to pay to its suppliers about 2/- per lb. butter-fat. Every dairy farmer knows this, but I have yet to meet the farmer who contends that the publication of this news commits his Company to advancing him 2/- per lb. Most of the Dairy Companies here have been advancing from 1/- to 1/3.

Some beekeepers have complained that we do not publish enough news items. It is surely poor inducement for us to publish more news if such an obviously simple announcement is misconstrued.—I am, &c.,

H. W. GILLING,
Managing Director N.Z. Co-op. H.P.A.

Hawera, May 18, 1918.

Bees in Relation to Fruit-Growing.

By I. HOPKINS.

(Paper read at the National Patriotic Apple Show, Auckland, May 1, 1918.)

No doubt many orchardists present will understand the value of cross pollination of fruit blossoms in the production of large crops of the best fruits; but perhaps it may be open to doubt whether all appreciate the immense value of the hive bee as an agent in bringing this about. It is not many years since it was a common belief among farmers and orchardists that bees were detrimental to their interests. The former maintained that bees in collecting nectar from his pastures deprived his stock of so much fattening matter which rightly belonged to him; and the latter that bees punctured his fruit, sucked the juices therefrom, and so brought about premature decay.

The Farmer.

The farmer certainly at the first blush of the matter seemed to have some grounds for his complaint, but had he possessed such an amount of knowledge as became an intelligent agriculturist, he would have realised that the visits of bees to his pastures could result in nothing but benefit to him by the cross-fertilisation of his clover, and the renewal of his pastures from the seed produced thereby. I have gone fully into this matter in an article in Bulletin 55 on Bee Culture, issued free by the Department of Agriculture, so I need say no more here on this subject.

The Orchardist.

The orchardist had no plausible grounds whatever for his prejudice, for bees never puncture the skins of fruit, not even grapes, as has been proved time after time. The late Professor A. J. Cook, one time entomologist at Michigan Agricultural College, an eminent apiarist, and Pomological Commissioner for California, placed bunches of sound grapes smothered with honey into the hive of a starving colony, the honey was cleaned from the grapes, but not one was punctured. This is only one out of many such experiments. In the season when fruit is ripe nectar in the fields is usually scarce; bees may then be seen sucking the juices of over-ripe fruit that has fallen from the trees or been punctured by other insects, or birds, and from this, without due thought, the prejudice arose.

Banishing Beekeepers.

In some of the great fruit-growing districts of California, the bias against bees was so intense that orchardists enforced neighbouring beekeepers by one means or another to quit, and to remove their bees to some distant place. The sequel, however, proved, to the regret of the orchardists, their great mistake, in so far that their crops fell off, and three seasons after they were glad to invite the beekeepers to return with their bees, and to pay their expenses. I was surprised, when connected with the Department of Agriculture a few years ago, and travelling around, to find so many fruit-growers totally ignorant of the great value of the work of bees in orchards. To give one instance out of many:—I was on one of my trips through Central Otago, and visited Roxburgh, the centre of one of the principal fruit-growing districts in New Zealand. My quest was bees, not fruit, and I was profoundly astonished to find there were only two colonies of bees in the whole district; consequently it did not surprise me to be told by some of the orchardists of the total failure year after year of some of their crops, especially of cherries. The owner of the largest cherry orchard told me he was disgusted; his trees blossomed freely, but failed to set fruit. I suggested that the want of cross-fertilising agents was the cause. The night before leaving I arranged a meeting of the principal fruit-growers, and addressed them on the advisability of getting plenty of bees in the district; they would then have no further cause of complaint of failure of crops. This was early in 1907. Seven years after I read in the Department's Journal that on account of the continual failure of the cherry crop one of the Department's officers had been sent to Roxburgh to investigate, and his advice was to "get bees." To put it plainly, their want of knowledge of the value of bees in fruit-growing was so notable at the time that the orchardists would not accept my advice. It has always seemed to me that the neglect to teach the groundwork of such an important subject in our schools is a great loss to the community.

Sexual Organs in Flowers.

Prior to giving evidence of the value of hive bees before all other agents in the cross fertilisation of fruit blossoms, it may be well to point out what actually takes place in the process of fertilisation. In flowers there are organs analogous to, though widely differing from, those indicative of sex in the animal kingdom. The functions at least are the same, and the combined action of the two sets is essential to the propagation of the race by seed.

Quoting from a work by the late Professor F. R. Cheshire: "Blooms are produced by plants in order that seeds may follow, and so the race be continued. Two parts are essential to this reproduction—the anther and the pistil, the latter very generally occupying the central position. The anther is usually a double-celled pouch, the contents of which by segmentation break up into a number of perfectly similar parts called 'pollen grains,' which, though minute, are complex in structure. When these are mature the anther splits or dehisces (to open), and the pollen escapes, but it needs in some way to be applied to the termination of the pistil, called the 'stigma.' When this application is effected, the pollen-grain absorbs moisture, its interior portion swells, and actually throws out a tube which often grows to a great length in making its way towards the unimpregnated nucleus of the ovule, which is situated in the ovary at the base of the pistil. In this nucleus a large cavity filled with protoplasm has developed, called the 'mother cell,' within which we find the embryonal vesicle, to which the contents of the pollen-grain is transferred by the channel of the pollen tube. This is fertilisation, and upon it depends the production of seed, for the new individual plant has its beginnings from this interfusion."

Most flowers are hermaphrodite, or double sexed, including most fruit blossoms. They contain both the stamens (anther bearers) and pistils within the same calyx, or on the same receptacle; but there are some species where the sexual organs, male and female, are found on different individual plants, so that some agency for the transference of the fructifying pollen-grains is absolutely necessary, or the species would soon die out. Many of the latter are anemophilous (wind fertilising plants), with inconspicuous flowers yielding no nectar, therefore not attractive to insects. In these cases Nature provides the male blossoms with an abundance of pollen grains, which are wafted by the wind to considerable distances, and so are likely to reach female blossoms and fulfil their all-needful function.

Mechanism of Flowers.

Darwin and others have proved that "cross-fertilisation is a most important factor in the continued vitality of any species of plant, and gives an enormous

advantage in the struggle for existence where the conditions of life are not wholly favourable.'' In the hermaphrodite or double-sexed flowers, where self-fertilisation is possible, Nature has provided in most cases some wonderful contrivances to prevent it, and to ensure cross-fertilisation by the transference of the all-potent pollen-grains from some other plant of the same species.

The adaptability of the hive bee to the work of cross-fertilisation seems most marvellous, when we realise that in its separate expeditions in search of nectar and pollen it keeps to the flowers of the same species, otherwise its visits would be of no service in most cases, and probably detrimental in many.

On the subject of hermaphrodite flowers, Cheshire says:—

''An examination of most blooms will show that the essential organs before referred to (anthers and pistils) are so placed that an accidental or unaided transfer of pollen to stigma is unlikely, and where this arrangement of parts is not found, it frequently occurs that the anthers ripen and dehisce much before, or not until some time after, the stigma has so matured as to be ready for pollination. In the former case, as we may observe in the common garden nasturtium (Tropæolum majus), the pollen is all carried away by insects by the time the stigma presents itself, so that if fertilisation be effected it must be through the bringing of pollen from some other blooms still shedding it. Insects are the means which accomplish this, and to secure this the blooms spread them a banquet.''

Effect of Imperfect Fertilisation.

A well-known author on the fertilisation of fruit blossoms already quoted stated:—''I had two hundred apples that had dropped during a gale, gathered promiscuously for a lecture illustration, and the cause of falling in every case but eight was traceable to imperfect fertilisation. Such fruits are readily recognised by being deformed, a part failing to grow from the want of perfect fertilisation. Cutting one such apple across, no seed will be found opposite the undeveloped part. These facts taken together show conclusively how completely our fruit crops are dependent upon insect agencies, and amongst these the hive bee takes the most important place. The apple is called by botanists a pseudo-syncarpous fruit, because it may be regarded as five fruits gathered into a unit by an envelope formed by a development of the calyx. If an apple be cut across, we see five compartments or dissepiments in the core, each one of which communicated with a dissepiment or partition, and required an independent fertilisation. Bees seeking honey would, by getting their breasts (furnished as they are with an abundance of long webbed hairs) thoroughly dusted with apple pollen, and flitting to a bloom whose stigma has reached the receptive condition, bring about fertilisation. It would, however, frequently happen that three or four of the stigmata only would be pollinated. In this case an apple, though an imperfect one, would be produced. Trees agitated by the winds frequently drop a number of their fruits, hence known as ''windfalls,'' but the actual cause of this dropping is in by far the largest number of instances defective fertilisation. In the case of the strawberry—and the same applies to the raspberry and other berry fruits—each little achenia (popularly known as seed) dotting its surface possesses a style and stigma. The stigma of each of the achenia must be fertilised to produce a perfect fruit; otherwise, if this is but partially accomplished, the part unfertilised remains undeveloped—hard, shrunken, and green—when the fertilised portion is fully ripe. Almost any dish of strawberries will furnish such examples.''

Fertilising Agencies.

There are many agencies which effect cross-fertilisation, some of much greater value to us than others. Water, as in the case of the well-known Vallisneria spiralis; wind, in the case of pines and hemlock; birds, snails, field bugs, ants, beetles, flies, moths, humble and other wild bees, wasps, &c. But the most important of all to the fruit-grower is the hive bee, for without its aid fruit-growers would be in a sorry plight. Even in countries in the Northern Hemisphere, where the numbers and varieties of agencies are much greater than in this, the hive bee leads. The great loss of bees in Britain in later years through disease is as much lamented by fruit-growers as by beekeepers. At a meeting of the National Federation of Fruit-growers, Mr. C. H. Hooper, M.R.A.C., of Wye College, England, gave particulars of 300 experiments he had conducted in order to get information on self and cross pollination in the orchards. Without going into details, it will be sufficient to say the results were entirely in favour of the latter, and from careful observation he estimates that 80 per cent. of the pollination of the hardy fruits is due to hive bees, and the remaining 20 per cent. to humble and other wild bees and insects. To account for this large average it must be remembered—and this is a very important point—that during the fruit-blooming season hive bees are the most numerous of all fertilising agents about at that time. This applies particularly to New Zealand, where such agents are fewer than in the Northern Hemisphere.

(To be continued.)

Every once in a while a colony is found that is crosser than others, and some way they seem to get the honey in greater quantities than many of their more even-tempered neighbours. The reason is simple enough. They are active, alert, always looking out for something, even if it be nothing more than trouble. Not all of the hustlers have bad tempers, however.

ROLL OF HONOUR.

"Our hearts, our hopes are all with thee,
Our hearts, our hopes, our prayers, our tears;
Our faith triumphant o'er our fears
Are all with thee, are all with thee."
—Longfellow.

B. G. EDWARDS, late of Geraldine. Invalided home.
L. D. CARTER, late of Springfield. Invalided home.
E. A. DENNIS, Glenroy.
W. A. HAWKE, Whitecliffs.
S. R. SMITH, Woodbury. Killed in action.
R. N. GIDLEY, Christchurch.
J. SILLIFANT, Christchurch.
P. E. HOLMES, Pirongia.
T. H. PEARSON, Claudelands.
R. E. HARRIS, Te Kowhai. Wounded.
R. S. HUTCHINSON, Hamilton.
J. P. IRELAND, Te Kowhai.
G. R. WILLIS. Pukekohe.
A. ECKROYD, St. Albans, Christchurch.
A. CURTIS, Porowhita.
W. G. DONALD, Brookside.
E. N. HONORE, Otakebo.
E. JEFFERY, Opotiki. Died in Egypt.
J. B. ARMSTRONG, Opotiki.
G. ROGERS, Opotiki.
C. BICKNELL, Greytown. Killed in action.
P. OTOWAY. Featherston. Killed in action.
G. NAPIER, Alfredton.
N. C. NAPIER, Alfredton.
W. J. JORDAN, Ngaruawahia.
G. SQUIRES, Fairview.
MURDO McKENZIE. Dunrobin.
W. H. BLACKIE, Ryal Bush.
JAMES IRVING, Albury.
R. M. HAMILTON, Ettrick.
A. E. CURRIE, Maungatua.
JAS. MARSHALL, Maungatua.
A. BEVAN, Waihau Downs.
D. CRAWFORD, Waikoikoi. Killed in action.
R. S. SUTHERLAND, Port Chalmers. Discharged; re-volunteered.
S. G. HERBERT, Ruawai.
F. W. LUNT, Addington.
J. MORGAN, Dannevirke.
H. SQUIRES, Hawera.
ALEX. MAITLAND, Orari. Killed in action.
A. R. BATES, Kaponga.
C. E. QUAIFE, Russell's Flat.
G. HARRISON, Waipahi.
H. W. McCALL. Wallacetown. Killed in action.
G. I. SHAW, Domett.
D. McCULLOCH, Havelock North.
E. CLARK, Westmere; invalided; severely wounded.
M. J. DOBBING, Morrinsville.
H. R. PENNY, Okaiawa.
C. L. GRANT, Rockville.

N.Z. Co-op. Honey Producers' Association, Ltd.

TO SHAREHOLDERS.

In the May issue of the Journal the statement is made:—"There is a tendency amongst some of the directors to pander to the local market at the expense of the contract, and even to entertain outside offers."

This statement is not quite in accordance with fact, as the following approximate figures will show.

The contract for the export of honey with the Bristol and Dominions Producers' Association, Ltd., is what might be termed an unending one—that is, the contract runs on from year to year. Provision, of course, is made that either of the parties to the contract may determine the contract after due notice. The B. and D, however, have done so well for the H.P.A., there seems no prospect of such notice being given.

Our contract commenced with the export season of 1915, when we exported a little more than the amount guaranteed.

In 1916, owing to the failure of crops in certain districts, the guarantee was not exported.

In 1917 about 70 per cent. of the honey controlled was exported, this quantity being sufficient to more than make up for the deficiency of the previous year.

For the present 1918 season arrangements have been made, if shipping space is available, to export approximately 80 per cent. of the amount of honey handled, the total weight of this quantity being four times the amount shipped in 1916, and nearly three times the quantity guaranteed.

The Directors, being unanimously of the opinion that the future of the honey industry in New Zealand depends upon our export, have in the meantime not made much attempt to develop the very large market there is in New Zealand, reserving this field until such time as the cost of packages is reduced.

In the near future a further payment on 1917 honey will be made. It is of particular interest that when this payment is made, suppliers to the Association will have received a better return for their honey than the beekeepers in any other part of the world.

We have pleasure in offering ourselves for re-election.

E. W. SAGE, Ohaupo.
R. W. BRICKELL, Dunedin.

SHAREHOLDERS WHO ARE UNABLE TO ATTEND THE MEETING SHOULD SEND THEIR PROXIES to BOX 104, HAWERA, NOT LATER THAN 8th JUNE.

ward for the information of the National Executive a report of the meetings of the Branches, and a copy of the Annual Report and Balance Sheet."

Suggested Amendment: Add—"He shall also supply the Branches from time to time with a summary of the business that is being transacted by the Executive."

Remits from Southland Branch.

1. That in view of the advance in the Beekeeping industry in this district, the time has arrived when a permanent inspector should be appointed for Southland alone.

2. That we consider the present system of grading honey satisfactory, and do not favour any alteration.

3. That the Government be urged to increase the salaries of the inspectors, otherwise we will be faced with a shortage of competent men.

3.30 p.m.—Any unfinished business.

4 p.m.—Election of officers for the ensuing year.

The above programme may be altered if circumstances require, and an evening session can be held if necessary.

FRED. C. BAINES,
Secretary.

There will be an Exhibition of Bee Appliances used at the Ruakura State Apiary, kindly sent by the Department of Agriculture.

National Beekeepers' Association of New Zealand.

PROGRAMME

of

Fifth Annual Conference

To be held at

Edmanson's Hall, 156 Lambton Quay, Wellington,

on

Thursday and Friday, June 13th and 14th, 1918.

10 a.m.—Opening of Conference by the Hon. W .D. S. MACDONALD, Minister of Agriculture.

Welcome to Visitors by J. P. LUKE, Esq., Mayor of Wellington.

Addresses by Mr. T. W. KIRK, Director of Horticulture Division; Mr. F. S. POPE, Secretary Department of Agriculture; and J. YOUNG, Esq., M.P.

11 a.m.—President's Address.

11.30 a.m.—Secretary's Report and Balance Sheet.

12.30 p.m.—Adjourn.

The National Beekeepers' Association and the N.Z. Co-operative Honey Producers' Association, Ltd., request the pleasure of your company at Luncheon, at the Tea Kiosk, Kelburn, Wellington, on THURSDAY, June 13th, at 1 p.m.

Photograph.

2.30 p.m.—"The Work at the Experimental Apiary, Ruakura." By the Officer in Charge, Mr. A. B. TRYTHALL.

3.15 p.m.—"Honey Packages for Export, and Grading."—Mr. JAS. ALLAN.

4 p.m.—"The Value of Genetics to all Beekeepers."—Mr. H. B. BARTLETT-MILLER.

4.30 p.m.—"A Few Remarks on Frames, Showing Different Kinds."—Mr. A. IRELAND.

5 p.m.—Adjourn.

EVENING SESSION.

Films of Beekeeping, Fruit-growing, and other Industries will be shown by the Department of Agriculture.

THURSDAY, JUNE 14th.

10 a.m.—Demonstration of the Benton Capping Melter.—Mr. Y. H. BENTON.

10.30 a.m.—Demonstration of the Bartlett-Miller Comb Melter, and the Clarifying of Honey that has passed through the same.—Mr. H. BARTLETT-MILLER.

11 a.m.—Queen Rearing, and Showing a Frame used for Hatching out Queens.—Mr. R. STEWART.

11.30 a.m.—"Advertising Honey."—Mr. R. W. BRICKELL.

12.0—"Beeswax Rendering."—Mr. R. H. NELSON.

12.30 p.m.—"Paspalum, and its Relation to Apiculture."—Mr. E. W. SAGE.

Adjourn.

2 p.m.—Suggested Amendments to the Constitution.—Waikato Branch: Secretary, Mr. E. W. SAGE.

Clause 7, Section (a.).

Standing Clause: "The Branch Secretary shall, as far as possible, collect all fees from members of his Branch, and remit the same to the General Secretary," &c., &c.

Suggested Amendment: Delete "as far as possible."

Clause 8.

Standing Clause: "Beekeepers may be either direct or Branch members of the Association at their option. All circulars and notices issued by the General Secretary shall state that it is advisable that members be attached to a Branch where one exists. Only those who pay their subscriptions to the Branch Secretary shall be deemed to be members of a Branch."

Suggested Amendment: "Every beekeeper is advised where possible to belong to a Branch Association, and pay his fees thereto. He may, however, if he think fit pay his fees to the General Secretary, who shall forthwith advise the Branch Secretary of the district in which he resides that this has been done. Those who pay their fees direct to the General Secretary shall not be deemed members of a Branch until they make formal application to become such."

Clause 10.

Standing Clause: "The Executive shall consist of a President, Vice-President, Secretary-Treasurer, and four members (two being from each Island), who shall be elected at the Annual Meeting. Should any vacancy occur during the year, the Executive shall fill the vacancy. The duties of the Executive shall be:—The general control of the Association's business in furthering the interests of the Association; the publication of reports; advertising and marketing of honey; and any other business which may be deemed advisable in the general interest of members."

Suggested Amendment: "Prior to the Annual Meeting, at which they are to be elected, every Branch Association shall nominate a representative to serve on the Executive. This shall consist of not less than seven members, but should not sufficient nominations be received, the quota shall be made good from members attending the Annual Meeting. The officers of the Executive shall consist of a President, Vice-President, and Secretary-Treasurer; the last-named, however, if thought desirable, may be appointed by the Executive from outside the Association. Should any vacancy occur during the year, the Branch from which it occurs shall be asked to nominate another member. The duties of the Executive shall be:—The general control of the Association's business in furthering the interests of the Association; the publication of reports; and any other business it may be deemed advisable in the general interest of members."

Clause 14.

"The General Secretary shall forward to the Branch Secretaries reports of the meetings of the Executive, and the District Secretaries shall for-

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